

WHAT IS CLAIMED IS:

1. A method of detecting the presence of depurination reaction products on a surface of an in situ produced nucleic acid array, said method comprising:
 - 5 (a) contacting an in situ produced nucleic acid array that includes at least one depurination probe feature of a depurination probe with a sample comprising a target nucleic acid that specifically binds to said depurination probe; and
 - (b) detecting the amount of resultant binding complexes in said
10 depurination probe feature to determine the presence of depurination reaction products on said surface.
2. The method according to Claim 1, wherein said method is a method of determining the amount of depurination reaction products on said surface.
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3. The method according to Claim 2, wherein said amount is a relative amount.
4. The method according to Claim 1, wherein said target nucleic acid is
20 labeled and said detecting comprising detecting a signal from said depurination probe feature.
5. The method according to Claim 4, wherein said label is fluorescent and said signal is a fluorescent signal.
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6. The method according to Claim 5, wherein said fluorescent signal has an intensity that is inversely proportional to the amount of depurination reaction products in said depurination probe feature.
- 30 7. The method according to Claim 1, wherein said array includes two or more different depurination probe features each corresponding to a distinct depurination probe.

8. The method according to Claim 7, wherein said array includes at least one early depurination probe feature and at least one late depurination probe feature.

5 9. The method according to Claim 1, wherein said array includes two or more identical depurination probe features whose synthesis was started at different times.

10. The method according to Claim 1, wherein said depurination probe has a known deblock dose.

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11. The method according to Claim 1, wherein said method further comprises evaluating the level of depurination that occurred during in situ fabrication of said array.

15 12. The method according to Claim 11, wherein said method is a method of evaluating the quality of an in situ nucleic acid array synthesis fabrication protocol.

20 13. The method according to Claim 12, wherein said method is employed to evaluate the quality of a plurality of nucleic acid arrays fabricated according to said protocol.

14. An array comprising a set of two or more nucleic acid depurination features.

25 15. The array according to Claim 14, wherein each member of said set comprises probes having identical probe hybridization domains and different tether domains.

16. The array according to Claim 15, wherein said different tether domains are polyA domains of differing length.

30 17. The array according to Claim 16, wherein said polyA domains range from about 1 to about 35 nt in length.

18. The array according to Claim 14, wherein said nucleic acid depurination probes of said set are immobilized on a surface of a solid support.

19. The array according to Claim 14, wherein said set includes both early and late depurination features.

5 20. The array according to Claim 14, wherein said set comprises a collection of staggered start depurination probes.

21. A method of detecting the presence of a nucleic acid analyte in a sample, said method comprising:

10 (a) contacting a nucleic acid array according to Claim 14 having a nucleic acid ligand that specifically binds to said nucleic acid analyte with a sample suspected of comprising said analyte under conditions sufficient for binding of said analyte to said nucleic acid ligand on said array to occur; and
(b) detecting the presence of binding complexes on the surface of said
15 array to detect the presence of said analyte in said sample.

22. The method according to Claim 21, wherein said sample comprises a collection of labeled target nucleic acids that specifically bind to said depurination probes nucleic acids.

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23. A method comprising transmitting a result from a reading of an array according to the method of Claim 21 from a first location to a second location.

24. The method according to Claim 23, wherein said second location is a
25 remote location.

25. A method comprising receiving a transmitted result of a reading of an array obtained according to the method Claim 21.

30 26. A kit for use in a nucleic acid analyte detection assay, said kit comprising: an array according to Claim 14.

27. The kit according to Claim 26, wherein said kit further comprises labeled target nucleic acids that specifically bind to said depurination probe nucleic acids.

28. A computer-readable medium having recorded thereon a program that determines the presence of depurination reaction products in a nucleic acid array from a signal observed from a depurination probe feature of said array.

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